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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,220	11/26/2003	Roger G. Markham	116595	5744

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EXAMINER	
GARCIA JR, RENE	

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/721,220	MARKHAM ET AL.	
	Examiner	Art Unit	
	Rene Garcia, Jr.	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) *37-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36,43-48,50 and 51* is/are rejected.

7)☒ Claim(s) *49* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *26 November 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 26 November 2003 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it list an attorney docket number and unpublished US applications numbers in the "US Patent Documents" section. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

With regards to those documents cited by applicant in "US Patent Documents" section, examiner has considered as to the merits the equivalent US patent application publications which are listed on PTO-892 Notice Of Reference Cited related to current office action.

Election/Restrictions

2. Claims 37-42 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention group II, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 14 December 2005.

3. Applicant's election with traverse of invention group I in the reply filed on 14 December 2005 is acknowledged. The traversal is on the ground(s) that subject matter of all the claims is sufficiently related and a thorough search of one group would encompass both groups, thus

would not present a serious burden upon the examiner. This is not found persuasive because in reference to MPEP 806.05(f) product can be restricted from the process if the examiner can demonstrate that the product as claimed can be made by another materially different process; defining the product in terms of a process by which it is made is nothing more than a permissible technique that applicant may use to define the invention. Inventions in Groups I and II are classified in different classes and therefore present a serious burden to the examiner in searching.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 15, 16, 28, 43-45 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable by Tanuma et al. (US 5,059,046) in view of Niikura et al. (US 5,880,754).

Tanuma et al. discloses the following claimed limitations:

*regarding claims 1, 43, 44 and 51, thermally-conductive carriage (fig. 3-5; col. 4, line 68 – col. 3, line 20)

*structure upon which the thermally-conductive carriage translates/**shaft, 12/** (fig. 3; col. 3, lines 5-6)

*at least one thermally-conductive interface structure between the thermally-conductive carriage and the structure upon which the thermally-conductive carriage translates that provides a

heat flow path from the thermally-conductive carriage into the at least one thermally-conductive interface structure (col. 3, lines 31-40 and lines 45-51)

*regarding claim 2, at least one thermally-conductive interface structure is a carriage rod guide with substantially a hollow tube-like structure/**element 9**/ (fig. 3)

*regarding claim 3, at least one thermally-conductive interface structure comprises at least one thermally-conductive material/**aluminum**/ (col. 3, line 3)

*regarding claim 15, structure upon which the thermally-conductive carriage translates is at least one thermally-conductive carriage guide rod/**shaft, 12**/, where the at least one thermally-conductive interface structure translates along the at least one thermally-conductive carriage guide rod (col. 3, lines 31-40 and lines 45-51)

*regarding claim 16, at least one thermally-conductive carriage guide rod comprises at least one thermally-conductive material (col. 3, line 36)

*regarding claims 28 and 45, at least one thermally-conductive interface structure that translates along the at least one thermally-conductive carriage guide rod is a hollow tube-like rod guide structure that has a generally corresponding cross-sectional shape and a slightly larger cross-sectional area than that of the at least one thermally-conductive carriage guide rod, such that a thin film of air is present between the surface of the at least one thermally-conductive

carriage guide rod and an internal surface of the at least one thermally-conductive tube-like carriage rod guide (fig. 3; col. 3, lines 2-6: element 9 has element 12/shaft/ passing through it and is movable with regards to each other, therefore cross-sectional area of element 9 is larger than 12, and since they are movable there is also provided a thin film of air present between the two)

Tanuma et al. does not disclose the following claimed limitations:

*regarding claim 1, carriage is a fluid ejector carriage

Niikura et al. discloses the following:

*regarding claim 1, carriage is a fluid ejector carriage (col. 5, lines 29-44) for the purpose of forming an image on a recording medium

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize carriage that is a fluid ejector carriage as taught by Niikura et al. into Tanuma et al. for the purpose of forming an image on a recording medium

6. Claims 4, 5, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma et al. (US 5,059,046) as modified by Niikura et al. (US 5,880,754) as applied to claim 1 above, and further in view of Plotkin et al. (US 6,305,786).

Tanuma et al. discloses all the claimed limitations except for the following:

*regarding claims 4 and 17, at least one thermally-conductive material includes at least one polymer

* regarding claims 5 and 18, at least one polymer is at least one of liquid crystal polymer, polyphenylene sulfide and polysulfone

Plotkin et al. disclose the following:

*regarding claims 4 and 17, at least one thermally-conductive material includes at least one polymer (col. 2, lines 13-15) for the purpose of making carriage lightweight

* regarding claims 5 and 18, at least one polymer is at least one of liquid crystal polymer, polyphenylene sulfide and polysulfone (col. 2, lines 13-15) for the purpose of making carriage lightweight

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize at least one thermally-conductive material includes at least one polymer; at least one polymer is at least one of liquid crystal polymer, polyphenylene sulfide and polysulfone as taught by Plotkin et al. into Tanuma et al. as modified by Niikura et al. for the purpose of making carriage lightweight.

7. Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma et al. (US 5,059,046) as modified by Niikura et al. (US 5,880,754) and Plotkin et al. (US 6,305,786) as applied to claim 4 above, and further in view of Satoi et al. (US 5,21,446).

Tanuma et al. as modified by Niikura et al. and Plotkin et al. discloses all the claimed limitations except for the following:

*regarding claims 6 and 19, at least one polymer is chemically resistant to ink

Dudenhoefer et al. disclose the following:

*regarding claims 6 and 19, at least one polymer is chemically resistant to ink (col. 5, lines 36-38) for the purpose of being chemically stable to withstand prolonged exposure to inkjet inks

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize at least one polymer is chemically resistant to ink as taught by Satoi et al. into Tanuma et al. as modified by Niikura et al. and Plotkin et al. for the purposes of for the purpose of being chemically stable to withstand prolonged exposure to inkjet inks.

8. Claims 7-11, 13, 14, 20-24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma et al. (US 5,059,046) as modified by Niikura et al. (US 5,880,754) as applied to claim 1 above, and further in view of Miller et al. (US 2005/0109766).

Tanuma et al. as modified by Niikura et al. discloses all the claimed limitations except for the following:

*regarding claims 7 and 20, at least one thermally-conductive material includes a polymer material and at least one thermally-conductive filler material

*regarding claims 8 and 21, at least one of the at least one thermally-conductive filler material has a thermal conductivity greater than about 10 W/m° C

*regarding claims 9 and 22, at least one of the at least one thermally-conductive filler material has a thermal conductivity less than about 100 W/m°C

*regarding claims 10 and 23, at least one of the at least one thermally-conductive filler material has a thermal conductivity of greater than 10 W/m° C

*regarding claims 11 and 24, at least one of the at least one thermally-conductive filler material includes a graphite material

*regarding claims 13 and 26, at least one of the at least one thermally-conductive filler material is a ceramic material

*regarding claims 14 and 27, ceramic material is at least one of boron nitride and aluminum nitride

Miler et al. disclose the following:

*regarding claims 7 and 20, at least one thermally-conductive material includes a polymer material and at least one thermally-conductive filler material (paragraph 0020 & 0017-0018; nickel) for the purpose of dissipating heat

*regarding claims 8 and 21, at least one of the at least one thermally-conductive filler material has a thermal conductivity greater than about 10 W/m° C (inherent feature of nickel 91.088 W/m°C) for the purpose of dissipating heat

*regarding claims 9 and 22, at least one of the at least one thermally-conductive filler material has a thermal conductivity less than about 100 W/m°C (inherent feature of nickel 91.088 W/m°C) for the purpose of dissipating heat

*regarding claims 10 and 23, at least one of the at least one thermally-conductive filler material has a thermal conductivity of greater than 10 W/m° C (inherent feature of nickel 91.088 W/m°C) for the purpose of dissipating heat

*regarding claims 11 and 24, at least one of the at least one thermally-conductive filler material includes a graphite material (paragraph 0020 & 0017-0018) for the purpose of dissipating heat

*regarding claims 13 and 26, at least one of the at least one thermally-conductive filler material is a ceramic material (paragraph 0020 & 0017-0018) for the purpose of dissipating heat

*regarding claims 14 and 27, ceramic material is at least one of boron nitride and aluminum nitride (paragraph 0020 & 0017-0018) for the purpose of dissipating heat

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize at least one thermally-conductive material includes a polymer material and at least one thermally-conductive filler material; at least one of the at least one thermally-conductive filler material has a thermal conductivity greater than about 10 W/m° C; at least one of the at least one thermally-conductive filler material has a thermal conductivity less than about 100 W/m°C; at least one of the at least one thermally-conductive filler material has a thermal conductivity of greater than 10 W/m° C; at least one of the at least one thermally-conductive filler material includes a graphite material; at least one of the at least one thermally-conductive filler material is a ceramic material; and ceramic material is at least one of boron

nitride and aluminum nitride as taught by Miller et al. into Tanuma et al. as modified by Niikura et al. for the purpose of dissipating heat.

9. Claims 7, 11, 12, 20, 24 and 25 are rejected under 35 U.S.C. 103(a) as being obvious over Tanuma et al. (US 5,059,046) as modified by Niikura et al. (US 5,880,754) as applied to claim 1 above, and further in view of Miller et al. (US 2005/0109766).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Tanuma et al. as modified by Niikura et al. discloses all the claimed limitations except for the following:

*regarding claims 7 and 20, at least one thermally-conductive material includes a polymer material and at least one thermally-conductive filler material

*regarding claims 11 and 24, at least one of the at least one thermally-conductive filler material includes a graphite material

*regarding claims 12 and 25, graphite material is formed using a petroleum pitch based material

Miler et al. disclose the following:

*regarding claims 7 and 20, at least one thermally-conductive material includes a polymer material and at least one thermally-conductive filler material (paragraph 0032) for the purpose of dissipating heat

*regarding claims 11 and 24, at least one of the at least one thermally-conductive filler material includes a graphite material (paragraph 0032) for the purpose of dissipating heat

*regarding claims 12 and 25, graphite material is formed using a petroleum pitch based material (paragraph 0032) for the purpose of dissipating heat

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize at least one thermally-conductive material includes a polymer material and at least one thermally-conductive filler material; at least one of the at least one thermally-conductive filler material includes a graphite material; and graphite material is formed using a petroleum pitch based material as taught by Miller et al. into Tanuma et al. as modified by Niikura et al. for the purpose of dissipating heat.

10. Claims 29-34, 36, 46, 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma et al. (US 5,059,046) as modified by Niikura et al. (US 5,880,754) as applied to claim 1 above, and further in view of Kazuhiko (JP 06-024097).

Tanuma et al. as modified by Niikura et al. discloses all the claimed limitations except for the following:

*regarding claim 29, at least one thermally-conductive rod guide bearing that encloses at least one open end of the at least one thermally-conductive carriage rod guide

*regarding claim 30, at least one thermally-conductive rod guide bearing has an opening having a generally corresponding cross-sectional shape and a generally corresponding cross-sectional area as that of the at least one thermally-conductive carriage guide rod, such that the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod provide a heat flow path to conduct heat from the thermally-conductive fluid ejector carriage and the at least one thermally-conductive carriage rod guide into the at least one thermally-conductive carriage guide rod

*regarding claim 31 , motion of the fluid ejector carriage and the at least one thermally-conductive carriage rod guide, as the at least one thermally-conductive carriage rod guide translates along the at least one thermally-conductive carriage guide rod, is not impeded by contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod

*regarding claims 32 and 50, at least one thermally-conductive carriage rod guide bearing traps a thin volume of air bounded by an internal surface of the at least one thermally-conductive carriage rod guide, the surface of the at least one thermally-conductive carriage guide rod and the at least one thermally-conductive carriage guide rod bearing

*regarding claim 33 and 48, heat is dissipated through convection through the thin volume of air as the thin volume of air is sheared across the surface of the at least one thermally-conductive carriage guide rod as the fluid ejector carriage and the at least one thermally-conductive carriage rod guide translate along the at least one thermally-conductive carriage guide rod

*regarding claims 34 and 46, at least one compliant, thermally-conductive pad that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod

*regarding claim 36, at least one mechanical device or structure usable to conduct heat that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod

Kazuhiko disclose the following:

*regarding claim 29, at least one thermally-conductive rod guide bearing/**metal bush, 2/** that encloses at least one open end of the at least one thermally-conductive carriage rod

guide/**shaft, 3/** (paragraph 0015; fig. 2 & 4) for the purpose of movement of the carriage over the print medium

*regarding claim 30, at least one thermally-conductive rod guide bearing has an opening having a generally corresponding cross-sectional shape and a generally corresponding cross-sectional area as that of the at least one thermally-conductive carriage guide rod, such that the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod provide a heat flow path to conduct heat from the thermally-conductive fluid ejector carriage and the at least one thermally-conductive carriage rod guide into the at least one thermally-conductive carriage guide rod (paragraph 0015; fig. 2 & 4) for the purpose of movement of the carriage over the print medium and transfer heat from the carriage to shaft

*regarding claim 31, motion of the fluid ejector carriage and the at least one thermally-conductive carriage rod guide, as the at least one thermally-conductive carriage rod guide translates along the at least one thermally-conductive carriage guide rod, is not impeded by contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod (paragraph 0012 & 0015; fig. 2 & 4) for the purpose of movement of the carriage over the print medium

*regarding claims 32 and 50, at least one thermally-conductive carriage rod guide bearing traps a thin volume of air bounded by an internal surface of the at least one thermally-conductive

carriage rod guide, the surface of the at least one thermally-conductive carriage guide rod and the at least one thermally-conductive carriage guide rod bearing (paragraph 0015; fig. 2 & 4; shaft/2/ and metal brush/2/ are movable with regards to each other, therefore cross-sectional area of metal brush is larger than shaft, and since they are movable there is also provided a thin film of air present between the two)) for the purpose of movement of the carriage over the print medium

*regarding claims 33 and 48, heat is dissipated through convection through the thin volume of air as the thin volume of air is sheared across the surface of the at least one thermally-conductive carriage guide rod as the fluid ejector carriage and the at least one thermally-conductive carriage rod guide translate along the at least one thermally-conductive carriage guide rod (paragraph 0015; fig. 2 & 4) for the purpose of dissipating heat from carriage

*regarding claims 34 and 46, at least one compliant, thermally-conductive pad/**metal bush, 2/** that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod (paragraph 0012 & 0012; fig. 2 & 4) for the purpose of dissipating heat from the carriage

*regarding claim 36, at least one mechanical device or structure/**metal bush, 2/** usable to conduct heat that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod (paragraph 0012 & 0012; fig. 2 & 4) for the purpose of dissipating heat from the carriage

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize at least one thermally-conductive rod guide bearing that encloses at least one open end of the at least one thermally-conductive carriage rod guide; at least one thermally-conductive rod guide bearing has an opening having a generally corresponding cross-sectional shape and a generally corresponding cross-sectional area as that of the at least one thermally-conductive carriage guide rod, such that the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod provide a heat flow path to conduct heat from the thermally-conductive fluid ejector carriage and the at least one thermally-conductive carriage rod guide into the at least one thermally-conductive carriage guide rod; motion of the fluid ejector carriage and the at least one thermally-conductive carriage rod guide, as the at least one thermally-conductive carriage rod guide translates along the at least one thermally-conductive carriage guide rod, is not impeded by contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod; at least one thermally-conductive carriage rod guide bearing traps a thin volume of air bounded by an internal surface of the at least one thermally-conductive carriage rod guide, the surface of the at least one thermally-conductive carriage guide rod and the at least one thermally-conductive carriage guide rod bearing; heat is dissipated through convection through the thin volume of air as the thin volume of air is sheared across the surface of the at least one thermally-conductive carriage guide rod as the fluid ejector carriage and the at least one thermally-conductive carriage rod guide translate along the at least one thermally-conductive carriage guide rod; at least one compliant, thermally-conductive pad that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and

the at least one thermally-conductive carriage guide rod; and at least one mechanical device or structure usable to conduct heat that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod as taught by Kazuhiko into Tanuma et al. as modified by Niikura et al. for the purpose of movement of the carriage over the print medium and transfer heat from the carriage to shaft

11. Claims 35 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma et al. (US 5,059,046) as modified by Niikura et al. (US 5,880,754) and Kazuhiko (JP 06-024097) with regards to claims 30 and 44 above, and further in view of Berg et al. (US 6,343,848)

Tanuma et al. as modified by Niikura et al. and Kazuhiko discloses all the claimed limitations except for the following:

*regarding claims 35 and 47, at least one phase change or other thermally-conductive heat sink compound that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod

Berg et al. disclose the following:

*regarding claims 35 and 47, at least one phase change or other thermally-conductive heat sink compound that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod (col. 3, lines 15-27 – carriage acts as a heat sink therefore it is obvious to use similar means to transfer heat between elements) for the purpose of improving heat transfer

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize at least one phase change or other thermally-conductive heat sink compound that is usable to augment contact between the at least one thermally-conductive carriage rod guide bearing and the at least one thermally-conductive carriage guide rod as taught by Berg et al. into Tanuma et al. as modified by Niikura et al. and Kazuhiko for the purpose of improving heat transfer

Allowable Subject Matter

12. Claim 49 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The primary reason for indicating allowable claim 49 is the inclusion of the method steps of an fluid ejector module that includes inducing a complex air flow pattern in the thin volume of air trapped between at least an internal surface of the at least one thermally-conductive carriage rod guide and a surface of the at least one thermally-conductive carriage guide rod as the at least one the thermally-conductive carriage rod guide translates along the at least one thermally-conductive carriage guide rod. It is these steps found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Holl (US 6,391,082) includes composites of powdered filler and polymer matrix for

electronic packaging materials. Hanagata et al. (US 3,855,448) includes a carriage and guide rod in a recording apparatus for heat transfer.

Communications with the USPTO

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rene Garcia, Jr. whose telephone number is (571) 272-5980. The examiner can normally be reached on M-F 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rene Garcia Jr
02 March 2006

3/02

K. FEGGINS
PRIMARY EXAMINER